DIFFERENT CLASSES OF ANTIBIOTICS - AN OVERVIEW

**Key:**
- **COMMONLY ACT AS BACTERIOSTATIC AGENTS, RESTRICTING GROWTH & REPRODUCTION**
- **COMMONLY ACT AS BACTERICIDAL AGENTS, CAUSING BACTERIAL CELL DEATH**

### 0-LACTAMS
- **MOST WIDELY USED ANTIBIOTICS IN THE NHS**
  - **MODE OF ACTION**
    - Inhibit bacteria cell wall biosynthesis.
  - **EXAMPLES**
    - Penicillins (shown) such as amoxicillin and flucloxacillin.
    - Cephalosporins such as cefalexin.

### AMINOGLYCOSIDES
- **FAMILY OF OVER 20 ANTIBIOTICS**
  - **MODE OF ACTION**
    - Inhibit the synthesis of proteins by bacteria, leading to cell death.
  - **EXAMPLES**
    - Streptomycin (shown), neomycin.
    - Tetracycline (shown), doxycycline.

### CHLORAMPHENICOL
- **COMMONLY USED IN LOW INCOME COUNTRIES**
  - **MODE OF ACTION**
    - Inhibit synthesis of proteins by bacteria, leading to cell death.
  - **EXAMPLES**
    - Chloramphenicol.

### GLYCOPEPTIDES
- **COMMON 'DRUGS OF LAST RESORT'**
  - **MODE OF ACTION**
    - Inhibit the synthesis of proteins by bacteria, preventing growth.
  - **EXAMPLES**
    - Vancomycin (shown), teicoplanin.

### ANSAMYCINS
- **CAN ALSO DEMONSTRATE ANTIVIRAL ACTIVITY**
  - **MODE OF ACTION**
    - Inhibit the synthesis of RNA by bacteria, leading to cell death.
  - **EXAMPLES**
    - Geldanamycin (shown), rifamycin.
    - Trovafloxacin.

### STREPTOGRAMINS
- **TWO GROUPS OF ANTIBIOTICS THAT ACT SYNERGISTICALLY**
  - **MODE OF ACTION**
    - Inhibit the synthesis of proteins by bacteria, leading to cell death.
  - **EXAMPLES**
    - Pristinamycin IIA (shown), Pristinamycin IA.

### SULFONAMIDES
- **FIRST COMMERCIAL ANTIBIOTICS WERE SULFONAMIDES**
  - **MODE OF ACTION**
    - Inhibit synthesis of proteins by bacteria, preventing growth.
  - **EXAMPLES**
    - Prontosil, sulfanilamide (shown), sulfadiazine, sulphisoxazole.

### TETRACYCLINES
- **BECOMING LESS POPULAR DUE TO DEVELOPMENT OF RESISTANCE**
  - **MODE OF ACTION**
    - Inhibit synthesis of proteins by bacteria, preventing growth.
  - **EXAMPLES**
    - Tetracycline (shown), doxycycline, lincosamide, oxytetracycline.

### MACROLIDES
- **SECOND MOST PRESCRIBED ANTIBIOTICS IN THE NHS**
  - **MODE OF ACTION**
    - Inhibit protein synthesis by bacteria, occasionally leading to cell death.
  - **EXAMPLES**
    - Erythromycin (shown), clarithromycin, azithromycin.

### OXAZOLIDINONES
- **POTENT ANTIBIOTICS COMMONLY USED AS 'DRUGS OF LAST RESORT'**
  - **MODE OF ACTION**
    - Inhibit synthesis of proteins by bacteria, preventing growth.
  - **EXAMPLES**
    - Linezolid (shown), posizolid, tedizolid, cycloserine.

### QUINOLONES
- **RESISTANCE EVOLVES RAPIDLY**
  - **MODE OF ACTION**
    - Interfere with bacteria DNA replication and transcription.
  - **EXAMPLES**
    - Ciprofloxacin (shown), levofloxacin, trovafloxacin.

### LIPOPEPTIDES
- **INSTANCES OF RESISTANCE RARE**
  - **MODE OF ACTION**
    - Disrupt multiple cell membrane functions, leading to cell death.
  - **EXAMPLES**
    - Daptomycin (shown), surfactin.